

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-004607**Date Inspected:** 12-Nov-2008**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** Japan Steel Works**OSM Arrival Time:** 830**OSM Departure Time:** 1700**Location:** Muroran, Japan**CWI Name:** Chung-Fu Kuan**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower, Jacking and Deviation Saddles**Summary of Items Observed:**

The following report is based on METS observations at Japan Steel Works (JSW) in Muroran Japan. Current work: Casting, machining and nondestructive testing of Saddles.

**Fabrication Shop 4****T1-1 Base**

No work performed on this date.

**T1-2 Base**

The QA inspector observed the in process welding of the structural steel plates for the Tower Saddle Base T1-2. The JSW welding personnel Mutuo Kashiwada, ID 08-2008 continued the fill welding of joint 8Y-10V (2-3) in the horizontal position. Masatugu Kobayashi, ID 08-5154 continued the fill welding of joint 8Y-9V (2-2) in the horizontal position. The welding was performed utilizing the gas shielded flux cored arc welding process per the welding procedure specification (WPS) SJ-3012-3. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 160°Celsius and maximum interpass temperature of 260°Celsius were verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. This data was entered into the QC inspector's daily log, identifying the location on a weld map.

**T1-3 Base**

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# WELDING INSPECTION REPORT

( Continued Page 2 of 4 )

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The QA inspector observed the in process assembly layout for the coming fit-up operation of the structural steel plates for the Tower Saddle Base T1-3. The JSW fitter personnel Kiyotaka Koanagi performed the layout in accordance with approved drawings.

## W2-E1

The QA inspector observed the in process welding operation of the structural steel plates for the West Deviation Saddle Base W2-E1. The JSW welding personnel Mamoru Kubota, ID 74-366 continued the fillet welding of joint E15-2U in the weld access hole where temporary weld run of tabs had been removed. The welding was performed utilizing the shielded metal arc welding (SMAW) process per the welding procedure specification (WPS) SJ-3011-14. The welding was performed in the 2G (Horizontal) position. The filler metal utilized was identified as 4.8mm diameter, Class E9018-M-H4R, Brand name Hoballoy 9018-M. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 160 degrees Celsius and maximum interpass temperature of 260 degrees Celsius was verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. This data was entered into the QC inspector's daily log, identifying the location on a weld map.

The QA inspector observed The Nikko Inspection Services QC/NDT technician Mr. Kazuya Kobayashi perform magnetic particle (MT) testing of West Deviation Saddle Base W2-E1 casting to fabricated base welds. The MT was performed in accordance with ASTM standard E709 and Nikko Inspection Services procedure SF-MT-01 using the yoke method with dry visible powder. The testing was evaluated in accordance with the contract special provisions. The testing was not completed on this date and the work appears to meet the minimum requirements of the contract specifications.

## Foundry

### W2-E2 Casting

The QA inspector observed the in process casting repair welding on West Deviation Saddle casting W2E2. The welding was performed to build up the thickness of the ribs in areas that were found to not meet the minimum thickness as shown on the approved drawings. The repair locations and repair details for this casting were submitted as number 000712, revision 00. The JSW welding personnel Ichinoseki Yoshikazu, ID 02-4997 continued the repair welding of repair 2-6 as shown in section D-D. Kozuya Komai, ID 06-8002 continued the repair welding of repair 3-10 as shown in section I-I. Suzuki Yuuhei, ID 03-2302 continued the repair welding of repair 3-8 as shown in section H-H. Kabutomori Yoshio, ID 06-8002 continued the repair welding of repair 1-4. The repairs were performed utilizing Shielded Metal Arc Welding (SMAW) per the welding procedure specification (WPS) SJ 3026-2. The welding parameters and heat control were monitored by JSW welding engineer Mr. Imai at periodic intervals. The minimum preheat temperature of 150° Celsius and maximum interpass temperature of 260° Celsius was verified to meet the WPS requirements by the QA inspector utilizing Tempilstik temperature indicators. The SMAW welding average amperage and voltage by clamp type meter and travel speed were verified to be within the welding procedure specification parameter range of 180 amps to 240 amps, 22 volts to 26 volts and travel speed of 115 to 280 mm per minute by the QA inspector. The work was not completed on this date and appears to meet the minimum requirements of the welding procedure specification and contract documents.

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## WELDING INSPECTION REPORT

( Continued Page 3 of 4 )

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### W2-W3 Casting

Two JSW employees were observed removing excess riser material from the exterior surface of the casting W2-W3. The material was removed utilizing the Air-Carbon Arc method. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

### T1-2 Casting

The QA inspector observed the Nikko Inspection Services QC/NDT technician Mr. Atsusi Seino perform straight beam ultrasonic testing of the casting T1-2 trough areas. The casting was scanned utilizing a Krautkramer Branson USM-3S. The testing was performed with a 4Mhz 20mm round dual element transducer. The testing was performed in accordance with the JSW procedure specification number SJ-2878 revision 4. The testing was not completed on this date and the work appears to meet the minimum requirements of the contract specifications.

The QA inspector performed ultrasonic testing of casting T1-2. The ultrasonic testing was performed on the interior of the casting on the north trough bottom and sides from rib 3 extending 400mm beyond. The casting was scanned utilizing a GE Technologies model USN 60. The straight beam scan on the trough surfaces was performed using a 1.0" round 2.25 MHz transducer calibrated on 3.0mm and 6.4mm diameter flat bottom holes in thicknesses from 45mm to 520mm. The QA inspector noted that the back wall signal could not be maintained at the bottom of the trough in the casting. The testing was performed in accordance with the JSW procedure specification number SJ-2878 revision 4. No relevant indications were observed in the area examined. The QA inspector did concur with the NDT level II technician's assessment.

### T1-3 Casting

One JSW employee was observed removing excess material from the exterior surface of the casting T1-3. The material was removed utilizing the Air-Carbon Arc method. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

The following digital photographs illustrate observations of the activities being performed.



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## WELDING INSPECTION REPORT

( Continued Page 4 of 4 )

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### Summary of Conversations:

There were general conversations with Intertek Testing Services Certified Welding Inspector Mr. Chung-Fu Kuan relative to the location of the welding and inspection personnel in the fabrication shop number 4 and as noted above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Venkatesh Iyer, (858) 967-6363, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Lanz,Joe	Quality Assurance Inspector
<b>Reviewed By:</b>	Brasel,Ron	QA Reviewer

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